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Norfolk Flood Risk Management Study

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NORFOLK FLOOD RISK MANAGEMENT STUDY

Norfolk District, USACE
City of Norfolk

US Army Corps of Engineers
PLANNING SMART
BUILDING STRONG®

NORFOLK FLOOD RISK MANAGEMENT STUDY

112th Congress
2nd Session

United States Senate
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

COMMITTEE RESOLUTION

RESOLVED BY THE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS OF THE UNITED STATES SENATE

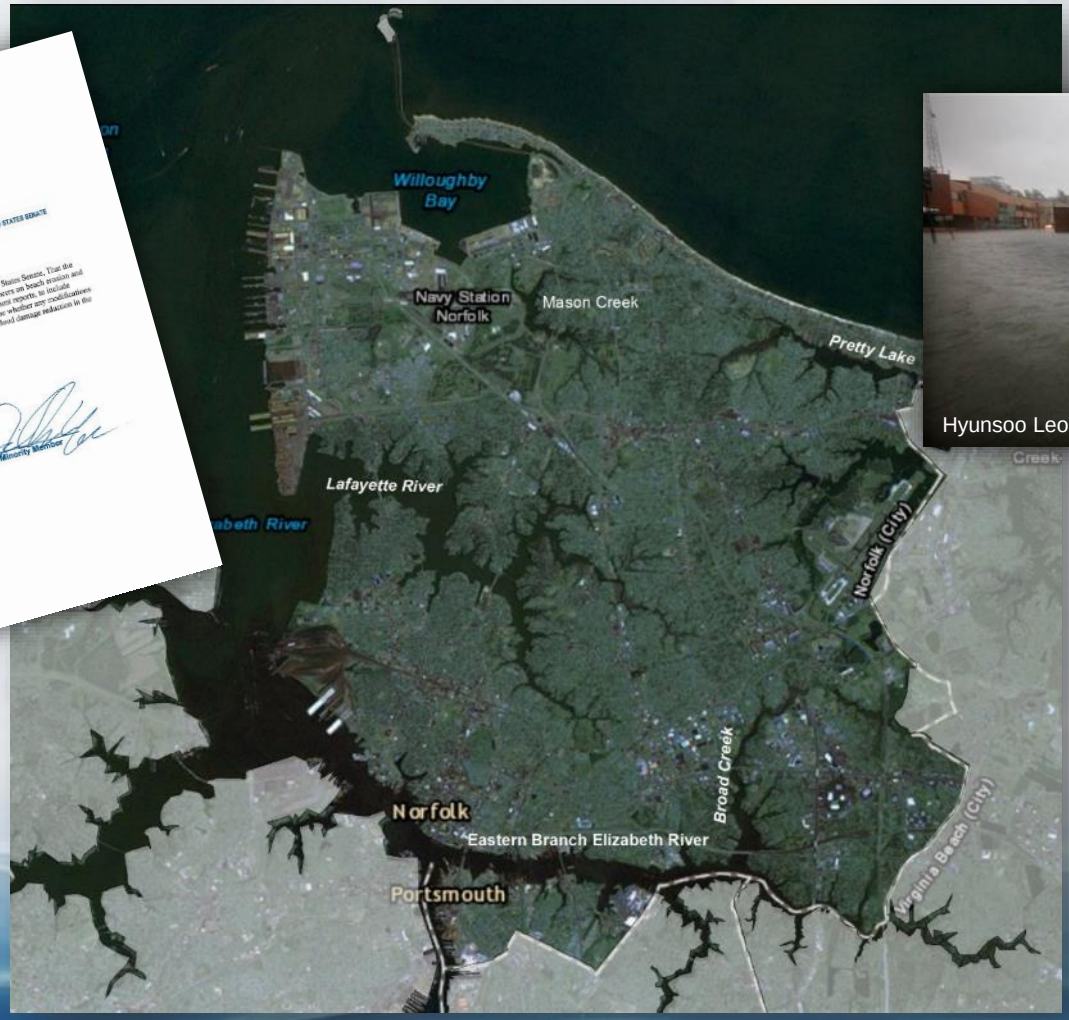
Norfolk, Virginia

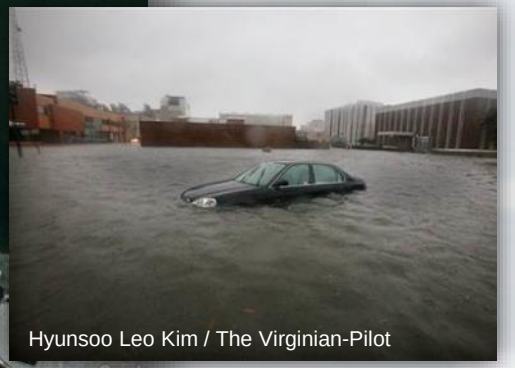
Resolved by the Committee on Environment and Public Works of the United States Senate, That the Secretary of the Army is requested to review the report of the Chief of Engineers on beach erosion and hurricane protection for Norfolk, VA, dated April 17, 1984, and other pertinent reports, to include existing flood risk management studies and engineering reports to determine whether any modifications of the recommendations contained therein are advisable in the interest of flood damage reduction in the vicinity of Norfolk, Virginia.

Chairman

Ranking Minority Member

Adopted: 7/25/12





Hyunsoo Leo Kim / The Virginian-Pilot

SMART PLANNING

- All Feasibility Studies expected to follow 3-3-3 Rule
  - 3 Year study duration
  - $3 Million maximum per study cost
  - Vertical team integration at 3 command levels (District, MSC, HQUSACE)
  - Exemption process for very large, complex studies that cannot meet the 3- year and/or $3 million policy
- Feasibility Cost Sharing Agreement (FCSA) is first step – executed February 2016
- Project Management Plan (PMP) and Scope of Work to be initially developed and updated throughout conduct of the study
- Risk-informed Decision making which focuses on Decision focused rather than the traditional, more task oriented planning

RISK-INFORMED DECISIONS

- Reorients the planning process away from simply collecting data or completing tasks and refocuses it on doing the work required to reduce uncertainty
- Iterative sequence of planning decisions required to complete a quality study
- Level of detail required to make planning decisions will grow over the course of the study

FEDERAL INTEREST

DEFINITION

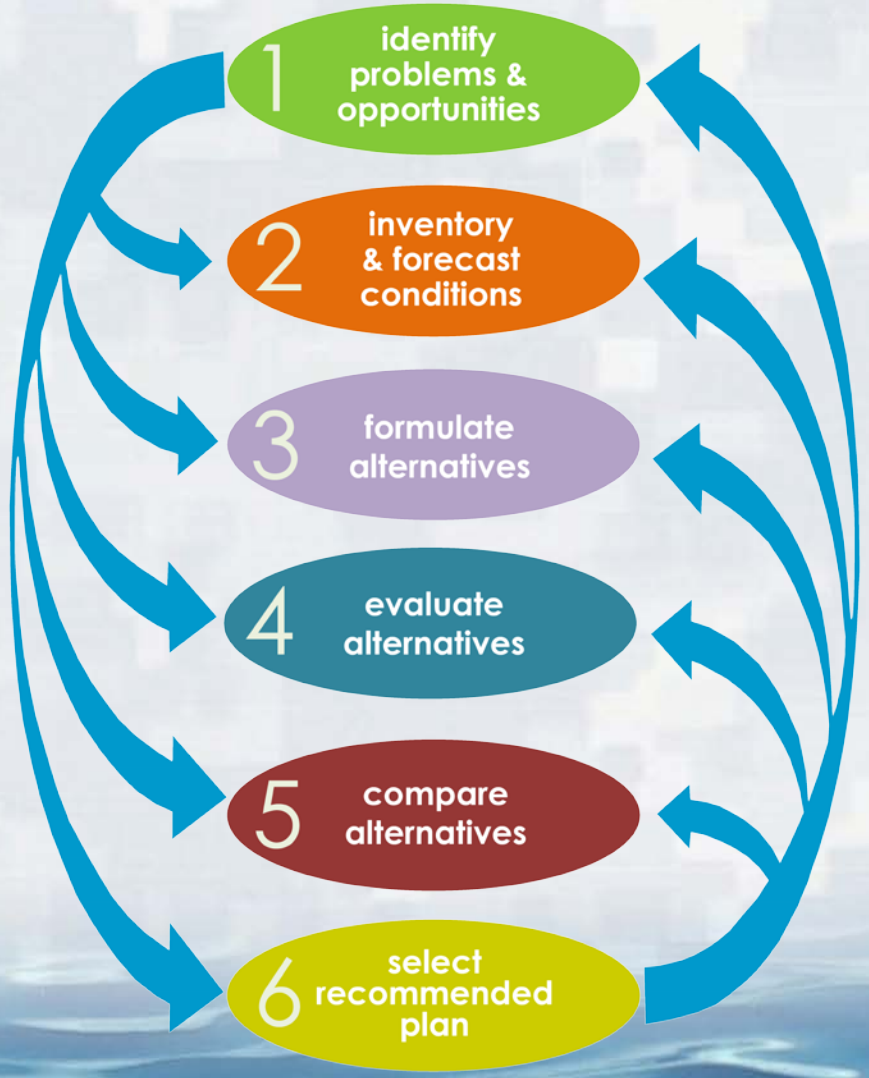
- USACE interest is consistent with our primary missions and consistent with Administration priorities
- Does the language of the study authority cover the situation?
- Is the situation related to a Corps “mission”?
- Are traditional project purposes involved?
- Is the situation within the scope of the Federal objective?
- Can the outcomes be described in terms of NED/NER benefit categories?
- Is the situation covered by other Administration policies related to the Corps‘ Program?

FEDERAL INTEREST

FLOOD RISK MANAGEMENT

- Navigable waters and their tributaries
- Watershed must have minimum area and discharge
- Structural and nonstructural measures
- Flood Plain Management (E.O. 11988)
- Residual Risk should be considered
- No minimum performance or protection
- Single property limitations
- Benefits are reduced flood damages

SIX STEP PLANNING PROCESS



SMART Feasibility Study Process

Up to 36 Months

Release draft report for **CONCURRENT REVIEW**

DE transmits final report package

SCOPING 3-6 Months

- Identify study objectives
- Define Problems & Opportunities
- NEPA Scoping
- Inventory & Initial Forecast
- Formulate Alternative Plans
- Evaluate alternatives and identify reasonable array
- Develop PMP and Review Plan
- Initiate Exemption Process **(if needed)**

ALTERNATIVE FORMULATION & ANALYSIS

FEASIBILITY-LEVEL ANALYSIS

CHIEF'S REPORT

1 **Alternatives Milestone**
Vertical Team concurrence on array of alternatives

2 **TSP Milestone**
Vertical Team concurrence on tentatively selected plan

3 **Agency Decision Milestone**
Agency endorsement of recommended plan

4 **Civil Works Review Board**
Release for State & Agency Review

5 **Chief's Report**
Chief's Report Signed

FEDERAL OBJECTIVE

The Federal objective of water and related land resources planning is to contribute to national economic development consistent with protecting the Nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements.

FOUR ACCOUNTS

- National Economic Development (NED)
- Environmental Quality (EQ)
- Regional Economic Development (RED)
- Other Social Effects (OSE)

NATIONAL ECONOMIC DEVELOPMENT

- Change in value of national outputs of goods and services
- NED Cost = all costs required to produce the benefits
- NED Benefit = positive change

NED COSTS

- Project Costs
- Operation, Maintenance, Repair, Replacement and Rehabilitation
- Interest During Construction
- Associated Costs

NED BENEFIT CATEGORIES

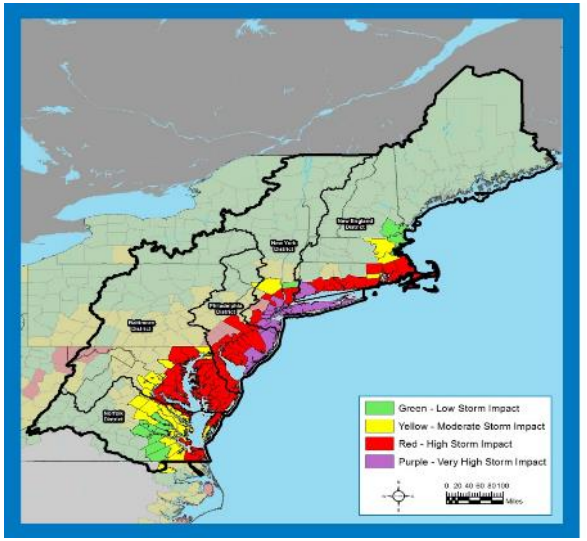
- Reduction In Physical Damages
  - Structure/Content Damage
  - Infrastructure Damage
- Reduction In Non-Physical Damages
  - Emergency/Evacuation Costs
  - Public/Private Protection Measures

ANALYTICAL REQUIREMENTS

- Systems Analysis
- Incremental Analysis (Separable Elements)
- Life-cycle Analysis

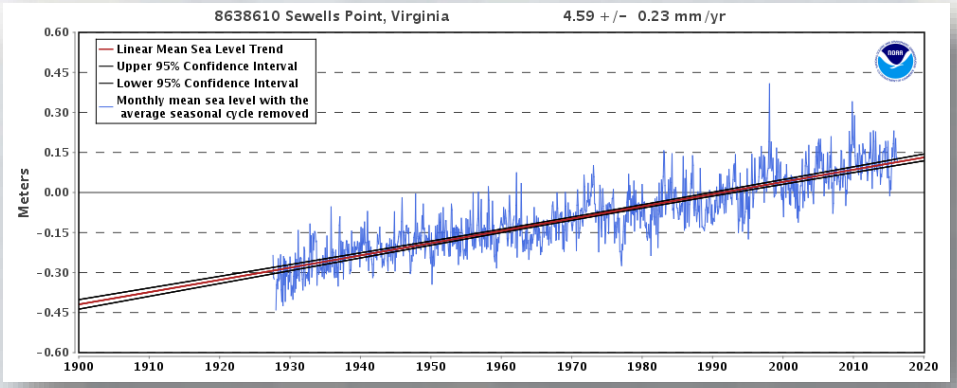
DATA

- North Atlantic Coast Comprehensive Study
- City of Norfolk Data
  - LiDAR
  - Parcel data, structure value, content value
  - Building type, first floor elevations, occupancy
  - Zoning and Building Requirements (timeline)
  - Comprehensive Master Plan



www.nad.usace.army.mil/CompStudy

SEA LEVEL RISE



8638610, Sewells Point, VA
User Defined Rate: 0.01500 feet/yr
All values are expressed in feet relative to NAVD88

Year	USACE Low	USACE Int	USACE High
1992	-0.26	-0.26	-0.26
1995	-0.22	-0.21	-0.21
2000	-0.14	-0.13	-0.12
2005	-0.07	-0.05	-0.00
2010	0.01	0.04	0.13
2015	0.09	0.13	0.28
2020	0.16	0.23	0.45
2025	0.24	0.33	0.64
2030	0.31	0.44	0.85
2035	0.39	0.55	1.07
2040	0.46	0.67	1.31
2045	0.54	0.79	1.58
2050	0.61	0.91	1.86
2055	0.69	1.04	2.16
2060	0.76	1.17	2.47
2065	0.84	1.31	2.81
2070	0.91	1.45	3.17
2075	0.99	1.60	3.54
2080	1.06	1.75	3.93
2085	1.14	1.90	4.34
2090	1.21	2.06	4.77
2095	1.29	2.23	5.22
2100	1.36	2.40	5.68

Print Table

8638610, Sewells Point, VA
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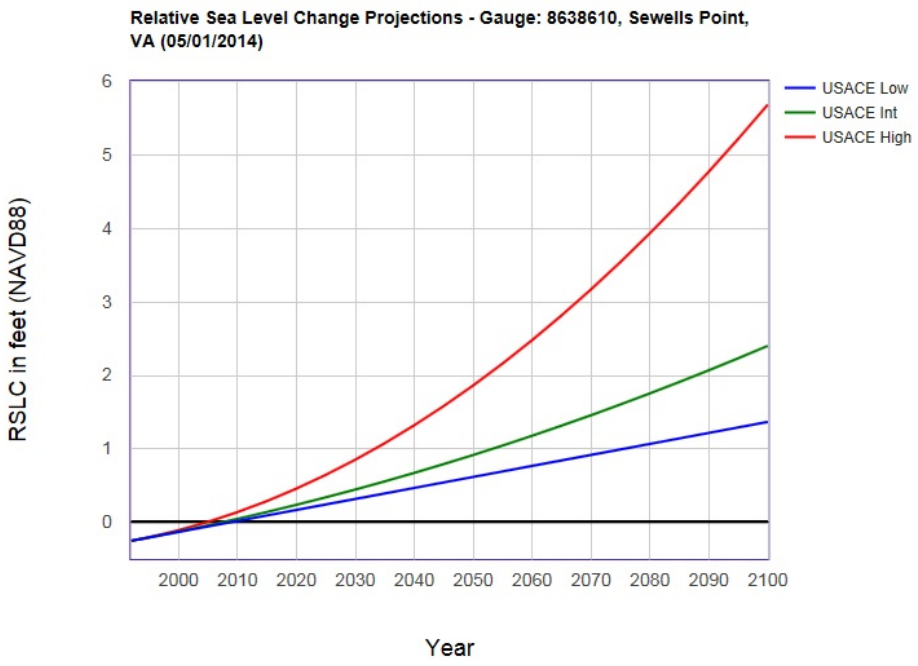
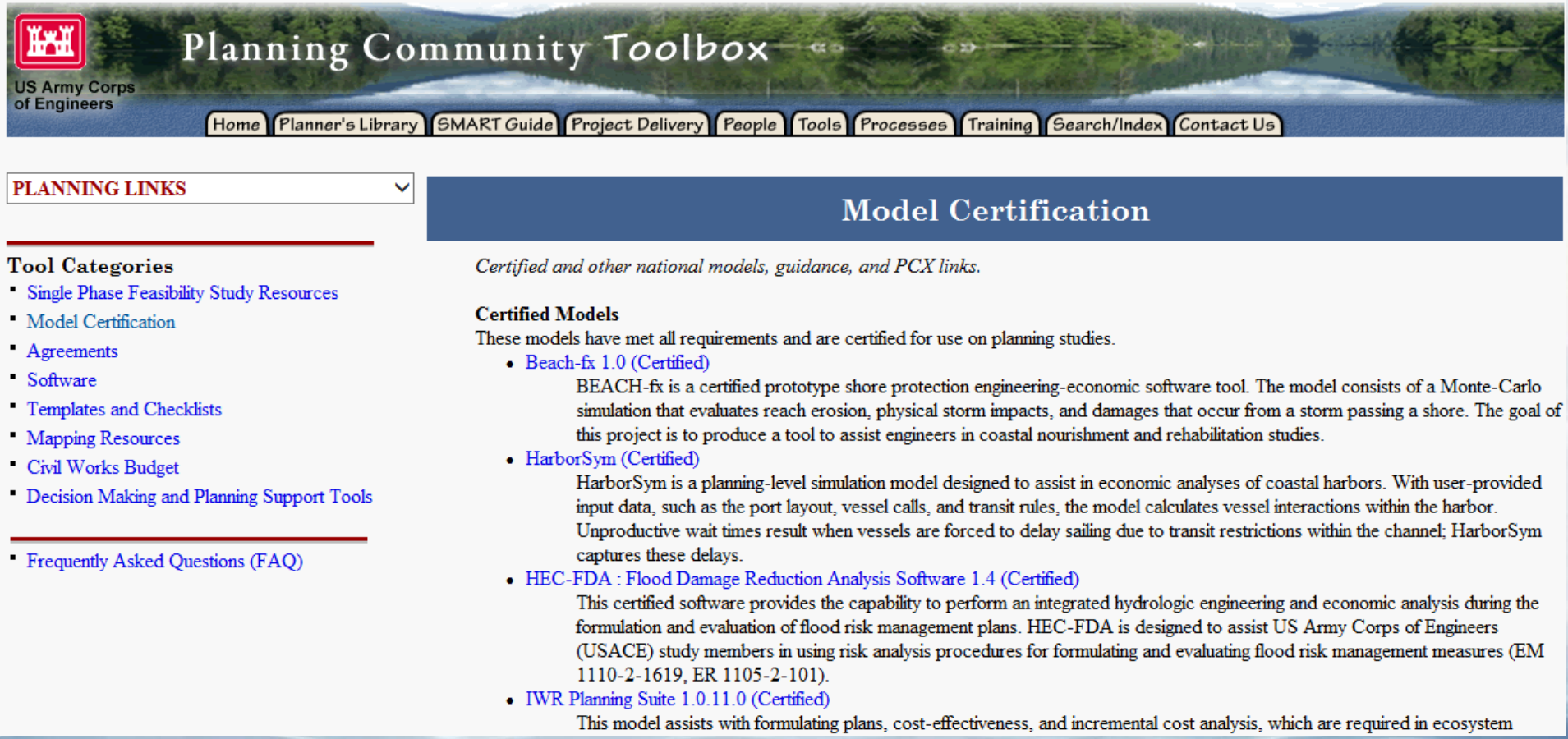


MODEL REQUIREMENTS



http://planning.usace.army.mil/toolbox/current.cfm?Title=Model%20Certification&ThisPage=ModelCert&Side=No

IDENTIFYING THE NED PLAN

- Without-project damages
- With project damages
- Benefits are damages reduced
- Net benefits are benefits less project costs (total life cycle costs, including environmental mitigation)
- Compare across project scales and between alternatives to determine plan that yields greatest NED benefits
- Decision-makers always have the final say

WHAT'S NEXT?

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ALTERNATIVES MILESTONE

At the Alternatives Milestone, we must have defined:

- Existing Conditions
- Future Without-Project Conditions
- Array of Alternatives
- Methods for Comparison

NEXT STEPS

- Gap Analysis of Available Data
- Continue to develop Management Measures (i.e. Building Blocks)
- Use Formulation Strategies to Develop Alternatives
- Develop Screening Criteria and Modeling Strategy

NORFOLK FLOOD RISK MANAGEMENT STUDY: POST STUDY

- Chief's Report to Congress
- Congress authorizes the project for construction
- Preconstruction, Engineer and Design (PED) phase begins
- Project must be budgeted ("new start" construction currently very competitive)
- Once federal and non-federal funds are both available, construction can begin